PRESERVING INDIAN PIPES WITHOUT DISCOLORATION.

N. M. Grier.

It will be recalled that with the usual procedure *Monotropa* turns black when pressed or preserved in alcohol or formalin. While engaged at the Biological Laboratory, Cold Spring Harbor, New York, during the past summer, the writer developed methods of preservation of these plants which to the present time have yielded very satisfactory results. The success of certain of the following methods is largely due to the suggestions of Dr. Oscar Riddle of the Carnegie Institution of Washington.

The post mortem blackening occurring in these plants is, according to the best authorities, due to the action of an oxidase upon the protein resulting in the formation of melanin pigment. With this in mind, the steps in the methods now given will be better understood.

Specimens should be well washed in cold water, and punctured at intervals along the stem and inflorescence with a fine needle. They should then be just immersed in boiling water and removed immediarely, as a lengthened period of immersion results in a blackening not removed by subsequent chemical treatment. The specimens are then placed in any one of the following solutions for permanent preservation without discoloration.

1. Carnoy's fixing fluid, made up on the basis of 95% alcohol rather than absolute. Punctured specimens, preserved without boiling in this solution, remained an excellent color. This fluid gave better results than any other used.

2. 95% alcohol, to which has been added 10% by volume of concentrated hydrochloric acid. In a few days, such a solution acquires a beautiful ruby hue from the pigment it has dissolved and precipitated. It should then be changed, lest the specimens acquire such coloration. Two or three changes of this fluid at intervals are sufficient. The specimen may then be kept in the final change, although the acid may be dispensed with. If punctured specimens with or without the boiling treatment are kept in 95% alcohol alone, an equally beautiful blue pigment is dissolved and precipitated. The reaction of the pigment to these chemicals resembles that of hematoxylin to acids and alkalies.

3. Hydrogen peroxide solution, full strength, for one week to ten days. At the end of this period, specimens apparently preserve well in alcohol or formalin.

4. A solution composed of 40 parts of distilled water, 2 parts of zinc chloride, 1 part formaldehyde, and 1 part of glycerine. This solution and modifications of it are much used by pomologists to preserve fruits in their natural aspect of form and color. With the formula used as stated, it yielded rather inferior results, although discoloration did not occur.

While immersion in boiling water before placing in preserving fluids gives the best results with all these fluids, less perfect specimens may be obtained by omitting that phase of the treatment. The methods outlined will not remove any blackening which has occurred before they are applied. Specimens treated as described above press to a very pale brown color.

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SENECIO OBOVATUS, VAR. ELONGATUS IN CONNECTICUT.—This variety, apparently not hitherto reported from New England, occurs in considerable abundance at a station in Guilford, Conn. It grows more or less mingled with the typical rayed form of the species, both in dense patches from four to ten feet in diameter, and as scattered individuals, in a woodland pasture of thirty acres or more. A part of the ground is a steep, dry, trap hillside: here the rayless plants predominate and are rather small, having a starved appearance. Were it not for the occurrence of vigorous patches in another, moister, part of the lot, where the non-radiate plants fully equal the radiate in size, I should think the rayless ones were merely ill-nourished forms. Some of the patches are almost entirely rayless, while others have nearly all the plants rayed. The long peduncles, however, are a very distinctive feature of the rayless form. I think the rayless plants larger and more abundant this year than last.—GEORGE H. BARTLETT, Guilford, Connecticut.

The annual FIELD MEETING OF THE VERMONT BOTANICAL CLUB was held at Montgomery Center, July 10 to 13, in conjunction with the Vermont Bird Club. There was an attendance of about thirty.